



# HEAT COMMAND SOLAR CONTROLLER

## Instruction Manual

## OPERATION

The Heat Command controller is an entry range automatic solar controller with temperature adjustment, manual mode and winter mode features. Mode of operation and the temperature limit setting are retained after a power outage.

## INSTALLATION

Find a suitable location to mount the control box. The controller must be installed out of direct weather and no closer than 3 meters from the water's edge. Lift up the two mounting tabs and use two appropriate screws to mount the control box to the wall, keeping in mind that the power cable is 1.8m long and should be plugged directly into a general power outlet, not into an extension lead.

### STANDARD / INDEPENDENT INSTALLATION

The solar pump plugs into the socket marked as SOLAR PUMP.

### RETRO FIT INSTALLATION

The Controller will need to be plugged directly into the Chlorinator's filter pump socket, with the filter pump plugged into the controllers AUX Plug socket, ensuring that the maximum combined output load does not exceed the advised manufacture output of chlorinator.

The pool sensor must be fitted into the suction line of the pump, as close to the pool as practical, preferably in a position out of direct sunlight. It is recommended that a 14.5mm hole be drilled in the PVC pipe, this can be carried out using a Sunlover Heating grinding drill or a small pilot hole can be drilled and a 14.0mm drill-bit used spinning in a counter clockwise direction to minimise the chance of shattering pipe. Insert the grommet into the pipe and gently push in the black sensor barb. The BLUE sensor plug is to be fitted to the plug socket marked POOL.

DO NOT cable-tie or tape sensor wires to mains power, in some cases there is some benefit to cable tie 30cm of wire from the sensor to the pipe and insulate this section (some ambient differences can travel up the tinned copper wire and affect the sensor reading).

The best location for the Roof Sensor installation is within arm's length of the gutters edge of the house or shed as long as the sensor end is not shaded and is on a roof of similar aspect of the main collector. It **must not** be fitted on top of the solar collector or fitted to high points on the roof like ridge capping as false readings will be detected. Keep in mind that it is of the utmost importance to keep the roof sensor as short as possible as this will assist in the longevity of the sensor and controller in the event of electrical storm activity and power surges. Sensor cables **must not be run parallel to power cables** and run lengths should be less than 50m if possible. Cable ties should be used to fasten the sensor cable to the cold water inlet pipe making sure that the ties are approximately 10mm from PVC fittings. Cable ties should be tightened only firm, over tightening can cause breaks in the outer PVC if not careful. If the cable is to be run under ground a conduit must be used to protect the wire and there is to be no cable joints within, conduit ends **must** be sealed to prevent water ingress. **Any excess cable should be removed.** The sensor plug is to be fitted to the right hand socket marked ROOF.

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To change the temperature limit that determines when to start or stop the pump simply press (or hold) the UP  button to increase the desired temperature limit; the DOWN  button will decrease it.

If the temperature limit is set below the current pipe temperature, then the pump is automatically started for 3 minutes to test the true pool water temperature.

The controller will automatically choose to run the pump based on solar gain (i.e. the sun is shining and roof is hot). Once the desired temperature is achieved, the pump is stopped and a 4 hour wait commences to ensure no energy is wasted by unnecessarily starting the pump. If after 4 hours, the roof is hot enough then the pump may start to provide a 2nd heating cycle; if not then the "waiting for roof to warm" message will appear. If the pool achieves temperature limit during the 2nd heat cycle then it will start an economy/sleep mode, which will prevent the pump from starting for the rest of the day.

### MANUAL PUMP MODE

Holding the UP  button to go above 40°C will toggle the pump from Off to On or vice-versa; Manual mode will time out after 30 minutes of being selected, with a default temperature limit of 30°C.

### SUMMER MODE (AUTOMATIC MODE)

Summer mode is the default mode of operation; if Tropical mode has been selected you can change back to Summer mode by pushing both buttons together. When SUMMER is displayed, release these buttons and then use the UP  or DOWN  buttons to set the desired temperature. The controller will automatically heat the pool to this temperature when solar conditions are favourable.

### WINTER MODE

Holding the DOWN  button to go below 20°C will set the unit into Winter mode. On selection of Winter mode, the pump will run for 3 minutes and will repeat every day at the same time unless the power fails. Should there be an interruption to power, then an exception takes place to prevent the pump starting at night and the sensors are tested to check that the roof sensor is 5°C or more above the pipe sensor. If this temperature condition is not met, the display will show "waiting for roof to warm". Once the pump starts, the controller will wait 24 hours to perform another unconditional flush of the system.

### TROPICAL MODE

To activate Tropical mode, push and hold both buttons and when TROPICAL is displayed, release these buttons and then use the UP  or DOWN  button to set the desired temperature. In Tropical mode the controller will attempt to heat the pool; if the pool exceeds the temperature limit while heating, then the controller turns off the pump and waits for the roof to cool so that the controller can cool the pool down by dissipating the heat on the cold roof (most likely to occur at night). In Tropical mode, the controller attempts to keep the pool at the temperature limit by either heating or cooling as required. Not designed for Tariff 33 power.

### AUX PLUG

The additional power socket is labelled **AUX plug** and live at all times, suitable for RETRO installations.



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# TROUBLESHOOTING GUIDE

## NO POWER TO THE DISPLAY

The power point maybe faulty. Test power point with a known working appliance to see if the power point is operational; if the actual power point is working, then check the controller with another power point. If there is still no display then send the controller for repair.

## PIPE/ROOF SENSOR FAULTS

Many Pool (Pipe) and Roof sensor problems are related to post installation connection issues or cable damage. Some of these problems can be fixed by the Pool owner on site.

### POOL / ROOF SENSOR DISCONNECTED OR OPEN CIRCUIT

The advised sensor cable maybe unplugged from controller, the cable maybe damaged or there is a bad cable join.

## ISOLATING SENSOR FAULTS

Swap the sensor locations; simply put the pipe sensor in the roof socket and the roof sensor in the pipe socket. If the fault moves from pipe to roof or vice-versa then you can be certain that there is a sensor fault. If the fault remains the same then the controller will need repair.

For sensor open circuit or wire error faults, check for damage to the cable and repair if required. If no damage can be found, replace the sensor. If the cable runs underground or inspection is not possible, then cut the sensor from near the end of the cable and strip back the wires and join them. If the controller reports a short circuit then the cable is fine and you may replace the sensor end if re-routing a new cable is not possible.

## NOTES:

1. If a sensor fault is detected the controller will display which sensor failed (POOL and/or ROOF) and the type of failure.
2. Should power be interrupted for any reason, the controller will resume normal operation when power is restored, all information will have been kept
3. If the controller has stopped pumping and is displaying a higher temperature than expected it may be caused by a pump which is failing to prime, check the pump and if necessary prime the pump as per the pump manufacturers' Instructions then reset the controller by turning it off/on.
4. Maximum combined rated output load when plugged into GPO for the two 240V socket is 9.98 Amps 2395 Watt.

# WARRANTY

This product is covered by a limited **2 year** warranty against component failure or faulty workmanship from the date of installation.

Temperature sensors are covered by a limited **12 month** warranty.

A faulty unit should be returned in the first instance to the dealer from which the unit was purchased.

Damage to the unit due to misuse, power surges, lightning strikes or installation that is not in accordance with the manufacturer's instruction may void the warranty.

If the power cord is damaged, do not use the controller; return the unit to the supplier for repair

Warranty does not include on-site labour, travel or freight / postage costs to or from installation site.

Return to supplier for repair

**Customer Record.** (To be retained by the customer)

Dealer/Installer Name.....

Serial Number.....

Date Installed.....

For service assistance phone SUNLOVER HEATING

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